Fig. 18 shows two of the connecting wires separate, three or four pairs of each of these are required.

These figs. are nearly one-fifth of the real size, and it will be seen that the magnetic power is very great in proportion to the galvanic power.

No. IV.

MODE OF PRESERVING LIME-JUICE.

The THANKS of the Society were this session voted to Captain T. M. BAGNOLD, for his Experiments on preserving Lime-Juice.

IT is well known that the juice of lemons, or of limes, expressed from the fruit, will in a short time, especially if kept warm, become mouldy, and unfit for use as an article of food; and that the final result of this spontaneous change is the destruction of the acid itself. The acid may, indeed, be separated from the other matters with which it is naturally mixed; but in so doing all the odour and flavour of the native juice are also destroyed, for pure crystallized citric acid is wholly inodorous, and to the taste simply acid.

The effect of pure citric acid in preventing or mitigating the severity of sea-scurvy is greatly inferior to the recent juice; and in many of our circumnavigations, lemon or lime-juice, mixed with a small proportion of rum, about one-tenth, has been found to keep for a considerable time in tropical countries, and to be very efficacious in preserving

the health of the crews. In some cases, however, this addition of spirit is by no means desirable.

In April, 1824, Captain Bagnold produced to the committee a specimen of lime-juice, which had been prepared in Jamaica in the preceding September, according to his directions. The juice having been expressed from the fruit was strained, and put into quart bottles: these having been carefully corked, were put into a pan of cold water, which was then by degrees raised to the boiling point. At that temperature it was kept for half an hour, and was then allowed to cool down to the temperature of the air. The process, therefore, was, in substance, only the same as that which has been long practised in this country for preserving green gooseberries, and other fruits, for domestic use. A bottle being opened by the committee, the juice was in the state of a whitish turbid liquor, with the acidity and much of the flavour of the lime; nor did it appear to have undergone any alteration.

In March, 1825, some of the same juice, which had been examined the year before, and which had since only been again heated and carefully bottled, was laid before the committee. It was still in good condition, retaining much of the flavour of the recent juice.

Hence, it appears, that by the application of the above process, the addition of rum, or other spirit, to lime or lemon juice, may be avoided, without rendering it at all more liable to spontaneous alteration.